LI'L COMPUTER Wwwzzz

A New Newsletter of Small Computer Wizardry! 'How to' help for all.

-- Issue #1-1991 --- Inaugural Issue/Sample --- Privately Published--- 2 pp. ----

Copyright©1991 by W.J. Harmer, Photocopy Freely This Sample Copy Before 1993

This inaugurates a new departure for us. We seek changes in appeal, but not in the topics that will be written about with this newsletter. The writing of articles on computing for the learner is something that has been a part-time activity with this writer for the last four years. Previously we talked computers under the title of newsletters called, TS Bulletin and Home Computer Orphan Survival Newsletter, among others. These newsletters were aimed at the hobby user of home computers and explored the theory of computer use and the electronics, in the way all hobbyists did, by practical experience. This started us into heavier ideas quite naturally in the form of problems met that needed some thought given to solution. Some were of the nature of making simple (or even rather clever)repairs or modifications to the earlier generation of less than perfectly reliable home computers. Other questions came from attempts to fill the gap in commercially available programs, with home-made computer programs written by amateurs. Since a whole generation of users got their start in computer basics and theory from this early home computer hobby boom, it does not seem like a great departure from our experience with that, at the editorial desk, to covering much of the same ground for a new generation. Here's hoping that we will have an enjoyable cruise throught hobby computer news, a look under the hood at what electronically is inside a computer, and a short run at computer programming for the millions (of folks) in the issues of this newsletter to come. For former readers, what is ahead will be better not different!

Computing Myths Destroyed: A useful computer does not have to be an expensive computer. Learning about computers is not boring at all! Computers are not hard! Knowing computers or reaching computer literacy isn't knowing it all!

……

Mission: Destroy Myth No.1 On This List: If a computer costing $25 used today is more powerful than one costing half-a-million (US) dollars in the 1950's, (which is exactly true), why would businesses pay the millions in the 1950's if they weren't useful? Still simpler is the question that concerns us, "Can we learn from a low cost computer, as a beginner?" and of course the answer has to be yes. Beginners and hobbyists do not need expensive computers no matter how much having them might be desirable, or advanced students might need computers similar to those to be met at work, before leaving school. It should take the average student many years of study to come close to outgrowing an older, low cost computer. It took the guys in white lab coats in the 1950's who used to use the older computers ten years to outgrow them, if they ever did!

……

On The Agenda What will you see? The future reader will find in this newsletter, a little current news, lots of opinionated views around the margins, and solid, well-written explanations of how computers work both inside and as to program modification and use, and what to do to understand why they crash. Once you understand why computers crash in specific cases, you should feel more at ease with the inevitable glitches from electrical storms, and have more sympathy for those who must repair a 'fried' computer, and learn how a few steps that anyone can take will minimize the risks. Anyway it is a curious tale to follow, about how the innards of a computer got to be designed the way they are today. But the real task ahead is to explain, for the beginning user, the more practical things that accelerate learning. The simple principle that makes it all come together. You want it. You'll need it. We'll have some of these principles, exposede for all to see and understand in the next few issues.

For example: What is an operating system? (And why do we need one?)
What memories does a computer have? (And a few examples.)
What do we mean by programming a computer (in BASIC)?
..and the article on the nest page of this newsletter.....

US=Publisher:B.J. Harmer,97 Ruskin St.,Ottawa,Ont. Canada K1Y 4B3 (Back iss.$2)

Regularly We Will Feature: News and contact addresses of suppliers and clubs, convering older,'classic' computers and orphaned ones, and some info on interesting things being done by amateurs, no matter what the computer make. Addresses like: SLIX, Sinclair (TS1000/QL/TS2068/Z-88) information Exchange, c/o Mr. W. Miller, 6675 Clifford Dr.,Cupertino,Calif.,USA95014-4530 a place to get a start on answering your questions on Sinclair computers, and like PDUG, a firm that supplies shareware and public domain programs for CP/M, Commodore 64 and 128, and MS DOS (IBM compatible) computers:POB1442,OrangePark,FL,USA32067

-First Published June 29,1991-----

Ye Olden Golden Days of High Technology

© 1989, in the public domain (THIS ARTICLE ONLY)

In the real olden days of the 1940's, computers, then referred to in the newspapers as electronic brains (we know better now don't we?), were limited in access to the same number of people who today operate supercomputers. A more limiting fact that might be worth mentioning is that computers of that generation had only one terminal per computer, not many—multi-user, multi-tasking, time-sharing concepts all came later, much later (1970's typically). The real gas was that from the perspective of later hobby computerists, they were slower and had smaller memories than today's cheapest orphaned home computer. So, obviously the general public was out in the cold, non-computerized world for many a year, and had only the newspaper headlines on 'electronic brains', the science fiction stories (often projecting a future either patently impossible or not yet reached in computer capabilities in today's most advanced labs) and a few paperbacks that talked in generalities, to go by. These popularizations might mention Hollerith, Babbage, and Boole and that's it.

In the 1950's, technical books of all kinds were in short supply on the used market, and technical manuals on computers, the only useful way to learn about them were in the possession only of insiders, students in a computer school, working engineers, or computer operators or programmers. It was a rare person in even silicon valley who had access to the sort of technical information that we hobbyists take for granted. One of these who had the inside track was Steve Wozniak, whose father, a practicing engineer in silicon valley, one night brought home a briefcase full of IEEE technical specs for vacuum tube computers. The precocious child pored over them intently and after learning about vacuum tube storage devices and possibly nixie tubes (incandescent number displays) and certainly vacuum tube flip-flops started on a journey of fascination with the lore of computers, leading to a DEC PDP-8 minicomputer manual, a part-time computer operator job and ultimately the Apple II. But before he designed the Apple II (and of course the earlier Apple I), he designed a dozen computers in his mind and scratch paper pads and dreams. Some teenagers draw cars. Steve drew computers and wiring diagrams for all sorts of little one-transistor (Germanium often then) gimmicks, designed to make a cricket noise or small radio transmitter.

What the designer of the Apple computer did then with the easily available info and plans from hobby magazines for radio buffs and the hard-to-find technical data for tube computers, was immerse himself in a technical culture that was mysterious to the layman, fascinating for the hobbyist and out of fashion at career days. The field to be in then was chemistry or chemical engineer. Electrical engineers were into radio and radar and not so much into computers. And university students had no opportunity (in the late 1940's and early 1950's) to even touch a computer unless they were studying to be an engineer or scientist. The field of computer science was still a branch of engineering, and a narrow specialty within it indeed, and an overlooked and underrated one at that.

The silicon chip put computer parts in the hands of the experimenter in the 1970's and the home computer came out for less than thousands of dollars each just before 1980 (ready-made rather than kit). Now every used book store of any size has a shelf or bin of the sort of technical books on computer science, computer parts, computer languages and operating systems that the avid seeker of the 1950's or '60's would have sold his little sister for (or worse). But since they are commonplace and cheap and getting the learning from them a task or a bore for many, they are the most underrated store of the history and course contents of a hundred technical colleges and universities (and the most ignored). You need not buy a $89 text or sign up for a $700 course or move to silicon valley to learn all you need to know to get started in the computer world. You need only to spend a couple of bucks on an old paperback on a once popular computer.

Perhaps it is a little oversimplifying to say that you can just learn it out of a book. But taking a couple of inexpensive courses at a local high school or college, in the evening, the summer or if you are of school age, as part of your regular curriculum will get you started. From then on a few books, some popular magazines and a cheap orphan computer bought at a flea market, out of a classified ad or from a computer user group swap day and you are on your way to computer literacy in a few short steps.

But I haunt the used book stores for a special reason. Computer history and technological history can only really be learned from the technical manuals of the period. Instruction sets and console diagrams are to us computer history buffs what the smell of black powder or picture of a civil war uniform are to the rest.

② SAVE

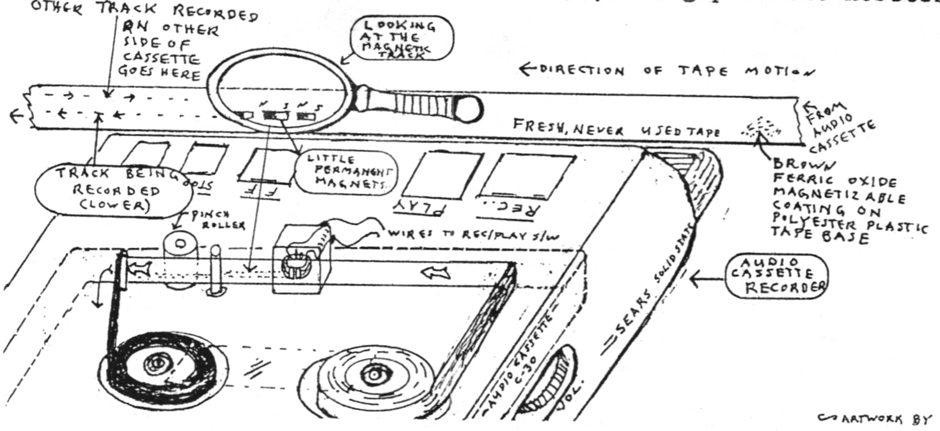
ON AUDIO CASSETTE

The computer itself has the interface and software to save a BASIC program and all variables (incl. arrays of data) on tape.

© 1991 B.J. HARMER

Most Classic/Orphan Computers Have This And Need Only Ordinary Audio Cassette Tape, Most But Not All (Exception Commodore, Atari), Using Ordinary, Inexpensive Cassette Recorders Available Everywhere:

- **cables** from the computer connect inside the computer to a cassette interface circuit and at the other end, inside the recorder to an amplifying circuit attached to the tape read/write head which is like an electromagnet with a coil and horseshoe shape, the gap of the horseshoe facing the tape:


OTHER TRACK RECORDED ON OTHER SIDE OF CASSETTE GOES HERE
LOOKING AT THE MAGNETIC TRACK
←DIRECTION OF TAPE MOTION
N S N S
FRESH, NEVER USED TAPE
FROM AUDIO CASSETTE
TRACK BEING RECORDED (LOWER)
LITTLE PERMANENT MAGNETS
STOP
F F
PLAY
REC.
BROWN FERRIC OXIDE MAGNETIZABLE COATING ON POLYESTER PLASTIC TAPE BASE
PINCH ROLLER
WIRES TO REC/PLAY S/W
AUDIO CASSETTE RECORDER
SEARS SOLID STATE
AUDIO CASSETTE C-30
VOL.

Recording on tape uses a frequency to record on tape that is suitable for a tape recorder a certain no. cycles of a certain frequency-binary 1, etc. The shape of the wave cycles varies from one make & model computer to another depending on circuitry used.

ARTWORK BY B.J.HARMER